

CUSTOMER PROFILE

Industry:
Power Generation

Plant Output
3x660 MW (1,980 MW total capacity)

Employees
500+

Assets Monitored
120 assets

Deployment Scope
110 tags analyzed

Critical Issue Prevented
TDBFP failure progression

Estimated Savings
\$700K

POWER GENERATION PLANT SAVES \$700K IN TURBINE DEGRADATION COSTS

AI Reasoning Agents detects performance degradation and bearing issues preventing costly downtime on a turbine-driven feedwater system

Unplanned Downtime Means Grid Instability

A major power generation facility operates three 660 MW units, serving as a critical link in the regional power grid. With over 500 employees and 120 critical assets, reliable operation is both a business imperative and a responsibility to thousands of customers who depend on consistent power delivery.

In power generation, unplanned downtime carries consequences that extend well beyond the plant fence. A single critical asset failure can force unit shutdowns with cascading effects across operations—lost revenue, grid instability, emergency repair expenses, and regulatory exposure. The margin for error is thin, and the cost of getting it wrong is measured in hundreds of thousands of dollars per incident.

Complex Interdependencies Require System-Level Analysis

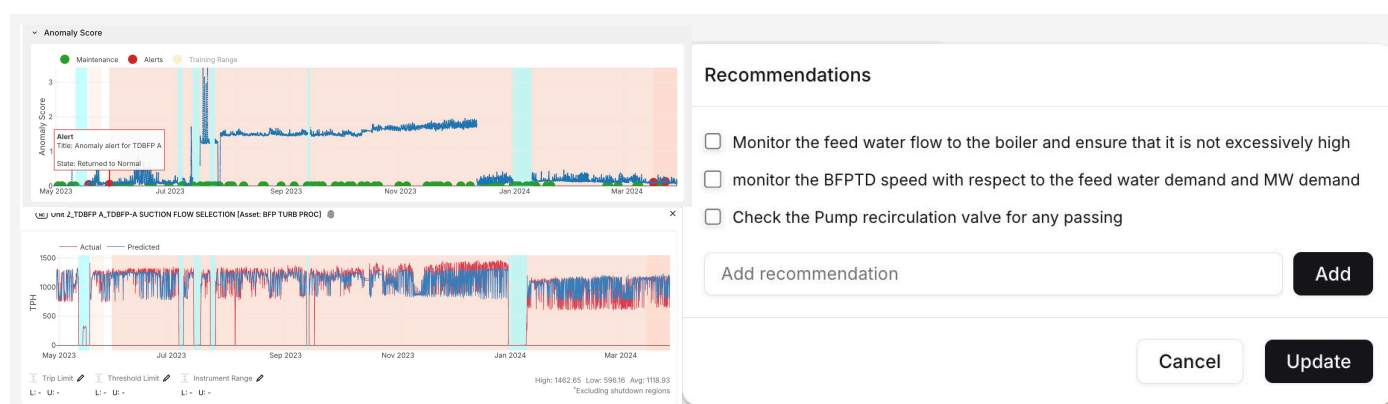
In power generation plants, analyzing equipment data in isolation rarely reveals the full picture. The Turbine-driven Boiler Feed Pump (TDBFP) performance issues were symptoms of complex interdependencies across the feedwater system that required correlating multiple parameters to identify root causes. The plant needed a solution that could detect deviations and anomalies in real time by analyzing the complete system context, not just individual equipment parameters.

UptimeAI Reasoning Agents Connected the Dots

Rather than continuing to rely on individual equipment alarms and threshold-based monitoring, the power plant deployed UptimeAI to provide system-level analysis of their critical assets. Leveraging advanced analytics capabilities and AI algorithms, UptimeAI analyzed data from 110 tags related to the TDBFP, turbine, and associated parameters. By correlating multiple data points, the system detected deviations and anomalies in real time, generating alerts that enabled the operations team to proactively address underlying issues.

The Catch: Real-Time Detection of Systemic TDBFP Degradation

UptimeAI identified correlated anomalies across the feedwater circuit—not individual threshold violations, but a developing system-level failure pattern.



Crucially, UptimeAI correlated these signals across the system rather than flagging them independently. The diagnosis connected performance degradation with bearing health, process conditions, and operational load—mapping the symptom pattern to known failure mechanisms for turbine-driven equipment. The system delivered a reasoned assessment with the evidence trail visible: here's what we see, here's why we believe it's happening, and here's what you can do about it.

The alerts provided the operations team with what mattered most: time, to take necessary corrective action.

Improved Plant Efficiency and Reliability

UptimeAI Became The Operators 24*7 Decision Support To Improve Plant Efficiency

Quantifiable Gains

- \$700K in estimated savings from prevented failures and avoided downtime
- Real-time detection of performance degradation before equipment failure
- Proactive maintenance enabled by early anomaly detection

Transformational Results

- System-level approach correlating 110+ tags across the TDBFP system
- Shift from reactive threshold monitoring to reasoned, context-aware recommendations
- 24/7 continuous monitoring providing decision support at operator speed
- Reduced dependency on ad-hoc expert investigation for complex diagnosis

The Difference: System Intelligence vs. Equipment Alarms

Traditional monitoring waits for parameters to exceed thresholds before alerting. Equipment is analyzed in isolation, missing the complex interdependencies that often cause failures.

UptimeAI takes a system-level approach, correlating data from 110+ tags across the TDBFP system to detect subtle deviations and anomalies in real time. This enables operations teams to address issues proactively, preventing failures rather than reacting to them. In power generation, where unplanned downtime is costly and critical equipment like the TDBFP must operate reliably, this distinction is essential.

About UptimeAI

UptimeAI provides AI reasoning agents that help industrial operations teams make goal-oriented, real-time optimal decisions. Our solutions achieve 90%+ pilot-to-production success rates and are trusted by leading companies in cement, oil & gas, power generation, chemicals, and metals industries. Backed by industry leaders including ABB, Yokogawa, and Mitsubishi.

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